Keiichi SUGIYAMA*: The Laboulbeniomycetes of eastern Asia (3) On nine species including two new species**

杉山恵一*: 東アジアのラブールベニア菌 (3) 2新種を含む9種について

1) **Dichomyces bifidus** Thaxter, Proc. Amer. Acad. Arts Sci. **37**: 26 (1901) et Mem. Amer. Acad. Arts Sci. **13**: 255 (1908).

Host genus: *Philonthus* (Coleoptera: Staphylinidae).

Distribution and host species: Japan (*Philonthus micanticollis* Sharp; det. Y. Shibata) and New Pomerania (*Philonthus* sp.).

Specimens examined: Tachikawa, Tokyo, Japan, May 6, 1937, M. Ishikawa 581; Ando, Shizuoka City, Shizuoka Pref., Japan, August 2, 1977, K. Sugiyama 2363; same locality, August 12, 1977, K. Sugiyama 2384; same locality, August 17, 1977, K. Sugiyama 2172; Osaka, Japan, August, 1935, M. Ishikawa 581.

The present species is characterized by having pointed apical projections of the perithecium and by lacking fork-like projection of the receptacle. It resembles *D. biformis*, and the author (Sugiyama 1973) erroneously reported *D. biformis* from Japan. However, the specimen (Ishikawa 581) is better identified with *D. bifidus* because of the presence of the perithecial projections with pointed tips extending obliquely.

2) **Dichomyces inaequalis** Thaxter, Proc. Amer. Acad. Arts Sci. **29**: 103 (1894) et Mem. Amer. Acad. Arts Sci. **12**: 283 (1896).

Host genus: *Philonthus* (Coleoptera: Staphylinidae).

Distribution and host species: Formosa (*Philonthus flavocinctus* Motschulsky; det. Y. Shibata) and U. S. A. (*P. debilis* Gravenhorst).

Specimen examined: Sun Moon Lake, Nantou County, Formosa, August 7, 1976, K. Sugiyama 1892.

This species is newly recorded from eastern Asia. The solitary perithecium with neither apical projection nor a pair of long blackish projections on lateral sides of the receptacle froms the main character of the present spe-

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cies. *D. inaequalis* resembles *D. furcifer* Thaxter, an allied species rarely with solitary perithecium, from which it is distinguished by the lack of apical projections of the perithecium.

3) **Eucantharomyces japonicus** Sugiyama, sp. nov. (Fig. 1. A-B).

Thalli fulvi, 680-700 μm longi. Receptacula distaliter spina formantia. Cellulae antheridii in 7-8 seriebus longitudinalibus ordinatae.

Thalli monoecious, hyaline, reddish yellow, consisting of receptacles, perithecia and compound antheridia, 680-700 μm long. Receptacle comprising basal and distal portions, 390-400 μm long, 30-40 μm thick; the basal portion composed of 2 cells arranged antero-posteriorly; the anterior cell cylindrical, forming basally a small blackish foot and distally a perithecial stalk, 180-200 μm long, 30-40 μm thick; the posterior cell similar to the anterior one, united to the latter on lateral side, supporting distally the distal portion of the receptacle, 160-170 μm long, 30-40 μm thick; the distal portion of the receptacle consisting of two layers of cells, forming a compound antheridium, 180-190 μm long, 40-42 μm thick; the basal layer one-celled, 70 μm long, 35-40 μm thick; apical layer consisting of two cells arranged antero-posteriorly; the anterior cell forming distally a compound antheridium, 35-40 μm long, 30-40 μm thick; the posterior cell exceeding the anterior one in length, united to the antheridium on lateral side, forming terminally a short tooth-like free projection, 110-120 μm long, 10-15 μm thick. Perithecium concolorous with the receptacle, comprising a stalk and a perithecium proper; stalk united to the layers of the distal portion of the receptacle on the lateral side, 170 μm long, 60-65 μm thick; perithecium proper subellipsoidal, 310-325 μm long, 95-105 μm thick; the surface lacking transverse striations; the apex rounded. Antheridium concolorous with the receptacle, composed of an antheridium proper and a discharge tube, 90 μm long, 35-40 μm thick; antheridium proper ovate, containing 7-8 longitudinal series of antheridial cells; discharge tube cylindrical, more or less tapering towards the apex, bent over the tip of the receptacle.

Host species: *Planetes punctaticeps* Andrews (det. K. Kurosa) (Coleoptera: Carabidae).

Distribution: Endemic to Japan (Honshū).

Specimen examined: Fujieda City, Shizuoka Pref., Japan, September 12, 1971, K. Sugiyama 900 (holotype in TNS).

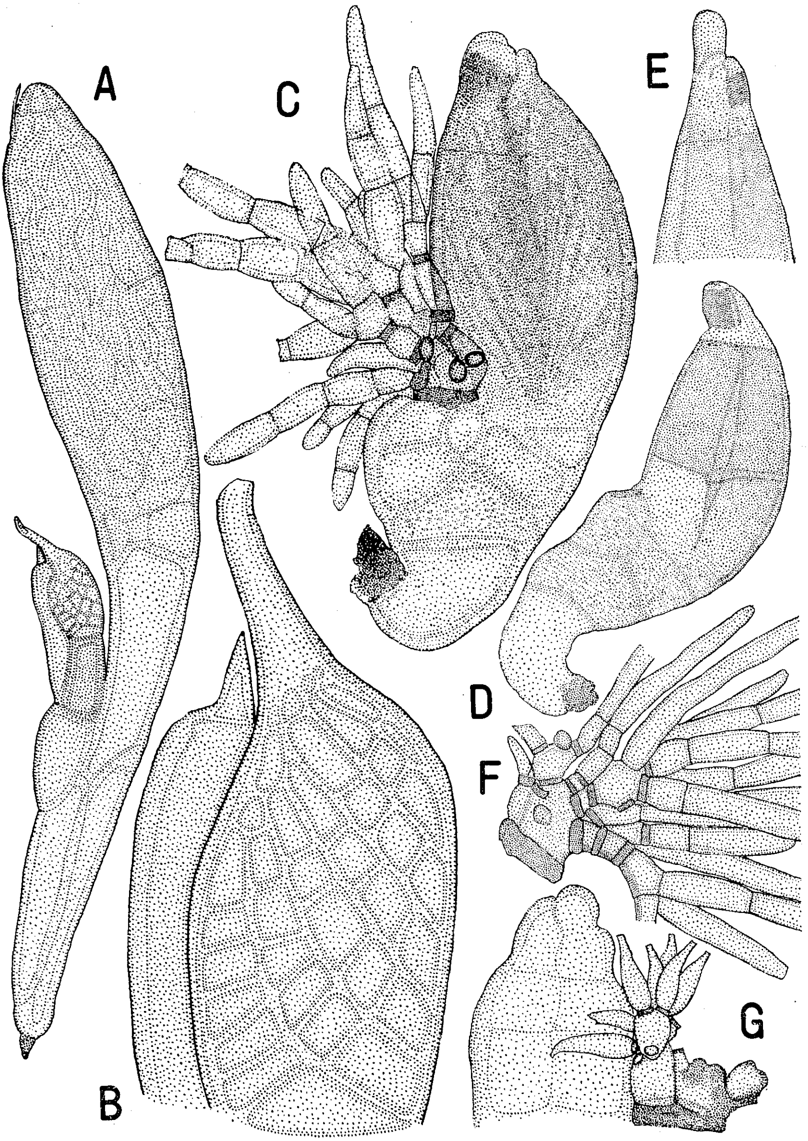

Fig. 1, A. B. *Eucantharomyces japonicus* Sugiyama: A. Mature plant. ×370, (type). B. Compound antheridium and tip of receptacle. ×1850. C-G. *Laboulbenia polymorpha* Sugiyama: C. Mature plant of shorter form with coarse perithecial apex. ×1000. D. Mature plant of shorter form with slender perithecial apex. ×700. E. Apical projection of the perithecium of the longer form. ×1000. F. Branches of receptacle. ×1000. G. Antheridia and immature perithecium. ×1000.

The apical tooth-like projection of the receptacle is found also in *Eucantharomyces spinosus* Thaxter, *E. diaphori* Thaxter and *E. stammeri* Scheloske. The present new species are distinguished from the former two by larger thalli (190-207 μm in *E. spinosus*, 180 μm in *E. diaphori*). It is separated from *E. stammeri* by relatively long basal portion of the receptacle as well as the lack of transverse striations of the perithecium.

4) **Laboulbenia acupalpi** Spegazzini, An. Mus. nac. Hist. nat. Buenos Aires **26**: 458 (1915).

Host genus: *Acupalpus* (Coleoptera: Carabidae).

Distribution and host species: Japan (*Acupalpus inornatus* Bates; det. K. Kurosa) and Europe (*A. elegans* Dejean).

Specimens examined: Gotenba City, Shizuoka Pref., Japan, July 14, 1977, K. Sugiyama 2191.

This species is newly recorded from eastern Asia. It is characterized by the two transverse series of small roundish prominences on middle portion of the perithecium.

5) **Laboulbenia polymorpha** Sugiyama, sp. nov. (Fig. 1. C-G).

Thalli fulvi, partim brunnei, 130-430 μm longi. Rami receptaculi furticosi, 60-155 μm longi, septis nigricantibus. Perithecia a latere e receptaculis liberata, 75-220 μm longa, 38-62 μm crassa, cellulis labii anterioribus aliquando prominentibus.

Thalli reddish yellow, partly brownish, 130-430 μm long. Receptacle comprising receptacle proper and branches; receptacle proper rather cylindrical, 75-220 μm long, composed of 5 layers of cells; each layer one-celled except the fourth one; the first layer cylindrical, tapering towards the basal end, forming basally a blackish conical foot, 30-130 μm long, 27-32 μm thick; the second layer 18-32 μm long, 32-50 μm thick; the third layer 10-28 μm long, 20-32 μm thick; the fourth layer consisting of two cells arranged anteroposteriorly, 8-18 μm long, 20-32 μm thick, the posterior cell larger than the anterior; the fifth layer deeply blackened, band-shaped in the lateral view, 5-8 μm long, 18-27 μm thick; branches of the receptacle formed on the distal end of the receptacle proper, consisting of two basal cells arranged anteroposteriorly; the anterior cell smaller than the posterior, forming antheridia in small clusters; the basal cell of the posterior branch forming several basal cells of branchlets on the distal end and on posterior side; the branchlets branched once or twice at basal portion; cells of the basal portion of the branches having blackish brown septa. Perithecia comprising stalks and perithecia proper; stalk formed on the second layer of the receptacle, composed of one basal and a few small distal cells, united to the third layer of the receptacles on lateral side; perithecium proper more or less darker than the receptacle, cylindrical to elliptical, completely free from the receptacle on lateral side, 75-220 μm long, 38-62 μm thick; the wall-cell longitudinally arranged without twisting; one of the posterior lip-cell often extending to form an apical projection. Antheridia hyaline, cylindrical, more or less tapering towards the distal end, formed on the subbasal cell of the anterior branch of the receptacles in young stage of the thallus, replaced by sterile branchlets in mature thallus, 17-18 μm long, 3-4 μm thick.

Host species: *Ophionea* sp. (Coleoptera: Carabidae).

Distribution and host species: Japan (*Ophionea indica* Thunberg; det. K. Kurosa) and Formosa (the same species).

Specimens examined: Sonae, Iriomote Isl., Okinawa Pref., Japan, May 28, 1977 (Jun Okuma leg.), K. Sugiyama 2101; Formosa (exact locality is unknown), July 5, 1941 (Yoshio Yano leg.), M. Ishikawa 673 (holotype in TNS); Formosa (exact locality is unknown), June 28, 1941 (Y. Yano leg.), M. Ishikawa 674.

Three distinct forms are recognized. They are 1) shorter form with coarse apex of perithecium (Fig. 1. C), 2) shorter form with slender apex (Fig. 1. D) and 3) longer form with perithecial projection (Fig. 1. E). Variable degrees of elongation of thalli and of modification of perithecial apex within a single species are also found in considerable numbers of species of this genus but they do not seem to be reliable for specific characters.

The present new species resembles *L. orientalis* Thaxter in the shape of the branches of the receptacle. However, it is distinguished from the latter by the antheridia formed in clusters, the untwisted series of wall-cells, and the perithecia often with apical projection.

6) **Monoicomyces homalotae** Thaxter, Proc. Amer. Acad. Arts Sci. **35**: 412 (1900) et Mem. Amer. Acad. Arts Sci. **13**: 268 (1908).

Host genera: *Atheta* (=*Homalota*) and *Trogophloeus* (Coleoptera: Staphylinidae).

Distribution and host species: Japan (*Atheta transfuga* Sharp; det. Y.

Shibata), Europe (*Atheta amicula* Stephens, *A. porens* Ray) and U. S. A. (*Atheta* sp. and *Trogophloeus* sp.).

Specimens examined: Hirayama, Shizuoka City, Shizuoka Pref., Japan, April 17, 1977, Sugiyama 2076, 2089, 2091 and 2092.

This species is added herewith to the flora of eastern Asia. The hyaline divergent thalli and the inflated perithecia are the main features of the present species. Some individuals have smaller thalli and darkened stalk of perithecium. However, they can not be considered to belong to distinct varieties.

7) **Polyandromyces coptosomalis** Thaxter. var. **coptosomalis** Thaxter, Proc. Amer. Acad. Arts Sci. **55**: 216 (1920) et Mem. Amer. Acad. Arts Sci. **14**: 316 (1924).

Host genus: *Coptosoma* (Hemiptera: Plataspidae).

Distribution and host species: Japan (*Coptosoma crabrarium* Fabricius and *C. punctissimum* Montandon; det. K. Kurosa), Madagascar (*C. maculatum* Westwood), Solomon Isl. and Fiji.

Specimens examined: Otomi-rindō, Iriomote Isl., Okinawa Pref., Japan, May 26, 1977 (Jun Okuma leg.), K. Sugiyama 2102 and 2103; Ako-rindo, Miyakesima Isl., Tokyo, Japan, May 1, 1978 (Jun Okuma leg.), K. Sugiyama 2474; Mineoka, Kamogawa City, Chiba Pref., Japan, June 4, 1978, K. Sugiyama 2475.

This species is new to the flora of eastern Asia. The male and female individuals collected in Japan coincide well with the original discription and figures given by Thaxter. This genus consists of one species with two varieties, var. *coptosomalis* and var. *minor* Thaxter. The typical variety is distinguished from var. *minor* by the larger thallus as the epithet suggests.

8) **Rhachomyces tenuis** Thaxter, Proc. Amer. Acad. Arts Sci. **35**: 437 (1900) et Mem. Amer. Acad. Arts Sci. **13**: 426 (1908).

Host genus: *Agonum* (Coleoptera: Carabidae).

Distribution and host: Formosa (*Agonum* sp.) and Java.

Specimen examined: Formosa (exact locality is unknown), May 1941, (Y. Yano leg.), M. Ishikawa 716.

The present species is newly recorded from Formosa. This fungus is one of the species with long thalli in the Laboulbeniomycetes. The specimens collected in Formosa are longer (1500-1550 μm) than the type (800-

1000 μm) and in this respect might be refer to *Rhachomyces longissimus* (Thaxter) Thaxter, the nearest ally of *R. tenuis*. However, the length of the thalli seems to be very variable and does not seem to be reliable for the identification of species in this genus. Subulate and straight appendages indicate that the specimens belong to *R. tenuis*.

9) **Rickia phloeonomi** Thaxter, Mem. Amer, Acad. Arts Sci. **15**: 494 (1926).

Host genera: *Phloenomus* and *Paraphloeostiba* (Coleoptera: Staphylinidae).

Distribution and host species: Japan (*Paraphloeostiba sonani* Bernhauer; det. Y. Shibata) and Sumatra (*Phloeonomus singularis* Klug).

Specimens examined: Sun Moon Lake, Nantou Country, Formosa, August 7, 1976, K. Sugiyama 1871, 1883, and 2000.

The present species is new to the flora of Formosa. The individuals on *Paraphloeostiba sonani* coincide well with the original description based on the materials parasitic on *Phloeonomus singularis*. The present species is readily distinguished from other members of the genus by the small roundish thallus and the dark perithecium as well as the relatively large curved antheridia.

I wish to express my hearty thanks to Miss Miyoko Inaba and Mr. Jun Okuma for collecting fresh meterials.

Literature cited

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日本あるいは台湾で新たに発見されたラブールベニア菌7属9種について報告する。エウカンタロミセス属およびラブールベニア属のそれぞれ1新種が含まれる。

(1) *Dichomyces bifidus* は第4層において急激に幅広くなる扇状の托によって特徴づけられる。托は角状突起を欠く。日本産ニジムネコガシラハネカクシ (*Philonthus micanticollis* Sharp) から採集された。

(2) *Dichomyces inaegualis* はたゞ1個の被子器を生ずる点で他種から区別される。台湾産コガシラハネカクシ属の1種 (*Philonthus flavocinctus* Motschulsky) より採集された。従来北米のみから知られていた。

(3) *Eucantharomyces japonicus* は黄赤色の菌体，先端に小突起をもつ托によって特徴づけられる。日本産フタホシスジバネゴミムシ (*Planetes punctaticeps* Andrews) より採集された新種である。

(4) *Laboulbenia acupalpus* は被子器に2横列の小突起があることにより特徴づけられる。日本産チビキイロゴモクムシ (*Acupalpus inornatus* Bates) より採集された。ヨーロッパ以外での初記録である。

(5) *Laboulbenia polymorpha* は形態変異の著るしい種で，細長い菌体をもち，被子器の先端に突起をもつ個体，短い菌体で被子の先端に突起をもたない個体などがある。これらは短い間隔で叉状分岐し，黒い細胞間壁をもつ特異な托の枝により同一種と見なされる。日本および台湾産アオクビナガゴミムシ (*Ophionea indica* Thunberg) より採集された新種である。

(6) *Monoicomyces homalotae* は無色で，下半分が著しくふくれた被子器によって特徴づけられる。ヨーロッパ，北米から知られていたがアジアからは初記録である。日本産キバネチビハネカクシ (*Atheta transfuga* Sharp) から発見された。

(7) *Polyandromyces coptosomalis* は雌雄異体で雄個体は著しく小型。1属1種。日本産タイワンマルカメムシ (*Coptosoma cribrarium* Fabricius) より採集された。

(8) *Rhachomyces tenuis* は1.5ミリメートルをこえる大形種で，特異な模様をもつ托によって特徴づけられる。台湾産ヒラタゴミムシの1種 (*Agonum* sp.) より採集された。

(9) *Rickia phloeonomi* は小型の楕円形に近い菌体，黒みがかった被子器，比較的大型でやゝ曲った造精器などによって特徴づけられる。台湾産ハネカクシ科の1種 (*Paraphloeostiba sonani* Bernhauer) より採集された。

正　誤 (**Errata**)

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207	1	lenght	length
212	25	bienial	biennial